AO 91 (Rev. 11/11) Criminal Complaint (approved by AUSA LIVERMORE)

UNITED STATES DISTRICT COURT

for the

Eastern District of Pennsylvania

United States of America
v.
YUE XUE
TAO LI
YAN MEI
TIAN XUE
LUCY XI

Defendant(s)

Case No. 15-1380

CRIMINAL COMPLAINT

I, the complainant in this case, state that the following is true to the best of my knowledge and belief.

On or about the date(s) of January 1 2012 to December 28 2015 in the county of Montgomery in the Eastern District of Pennsylvania, the defendant(s) violated:

Code Section	*Offense Description*
18 U.S.C. § 1349	Conspiracy to Commit Wire Fraud

This criminal complaint is based on these facts:

SEE ATTACHED AFFIDAVIT

❒ Continued on the attached sheet.

Complainant's signature

FBI S/A Andrew Haugen

Printed name and title

Sworn to before me and signed in my presence.

Date: 12/29/15

Judge's signature

City and state: Philadelphia, PA

HON. M. FAITH ANGELL, USMJ

Printed name and title

AFFIDAVIT IN SUPPORT OF APPLICATION FOR ARREST WARRANT

I, Andrew Haugen, Special Agent with the Federal Bureau of Investigation (FBI) being duly sworn, do hereby depose and state as follows:

I. INTRODUCTION AND PERTINENT STATUTES

1. I submit this affidavit in support of a criminal complaint and arrest warrants for YU XUE, TAO LI, YAN MEI, TIAN XUE, and LUCY XI for conspiracy to commit wire fraud in violation of 18 U.S.C. § 1349 for stealing confidential and trade secret information from GlaxoSmithKline ("GSK") for their own pecuniary benefit. YU XUE is a current GSK employee and LUCY XI is a former GSK employee. The stolen information contains the blueprints to manufacture cutting-edge pharmaceutical products currently being developed by GSK and other important GSK research information. This data potentially could be sold for millions of dollars to rival pharmaceutical companies and it would also be useful information for a start-up pharmaceutical company. The conspirators established three corporations called Renopharma, Inc., Nanjing Renopharma, Ltd, and Shanghai Renopharma, Ltd. (collectively referred to herein as "RENOPHARMA") to market and sell the stolen data to GSK's competitors in China. The management of GSK is aware of this investigation and, to the best of my knowledge and belief, has been fully cooperative with this investigation to date.

2. Title 18, United States Code, Section 1343 provides, in pertinent part:

> Whoever, having devised or intending to devise any scheme or artifice to defraud, or for obtaining money or property by means of false or fraudulent pretenses, representations, or promises, transmits or causes to be transmitted by means of wire, radio, or television communication in interstate or foreign commerce, any writings, signs, signals, pictures, or sounds for the purpose of executing such scheme or artifice, shall be fined under this title or imprisoned not more than 20 years, or both.

3. Title 18, United States Code, Section 1349 provides:

> Any person who attempts or conspires to commit any offense under this chapter shall be subject to the same penalties as those prescribed for the offense, the commission of which was the object of the attempt or conspiracy.

4. The statements contained in this affidavit are based on my own knowledge and on information provided to me by other law enforcement officers. Because this affidavit is being submitted for the limited purpose of securing a complaint and arrest warrants, I have not included each and every fact known to me concerning this investigation, but rather those facts which I believe are necessary to establish probable cause. In addition, some of the e-mails referenced below were written in whole or in part in Mandarin Chinese. I do not read Mandarin Chinese. Therefore, I am relying upon summaries of these e-mails provided to me by Mandarin

speaking FBI agents, linguists, and contractors. Finally, I reference a number of seized e-mails in this affidavit. I note that there are discrepancies in the date and time stamp of some of the e-mail communications based on a variety of factors to include location of sender/recipient and the location of the e-mail service provider servers, and the e-mail service providers use of particular time zones. Thus, the same e-mail seized from different accounts may have different time stamps.

II. BACKGROUND

A. Professional Background

5. I am a Special Agent (S/A) with the Federal Bureau of Investigation (FBI). I have been a Special Agent since July 2010. Prior to that, I was an analyst employed by the FBI, assigned to the International Operations Division where I worked fugitive matters through Interpol.

6. I am a graduate of the FBI's New Agent Training program located at Quantico, Virginia. I have conducted economic espionage and theft of trade secret investigations for over four years. I have also been trained in the nuances of these types of investigations through a variety of courses conducted by the FBI and Department of Justice.

7. As a federal agent, I am authorized to investigate violations of laws of the United States and to execute warrants issued under the authority of the United States.

B. GSK

8. Based upon information provided to me by GSK officials, I have learned the following about GSK:

a. GSK is a global pharmaceutical corporation with tens of thousands of employees. GSK researches, develops, secures regulatory approval, manufactures, markets, and sells pharmaceutical products. GSK operates research facilities around the world, including one in Upper Merion, Pennsylvania.

C. Subjects of the Investigation

9. YU XUE, a/k/a "Joyce," works as a research scientist for GSK and has been so employed since June 2006. She was a senior-level manager at GSK with oversight of 2 to 3 junior employees. Given her position, she had access to a wide array of GSK trade secret information. YU XUE worked at GSK's research facility in Upper Merion, PA. As described below, YU XUE e-mailed GSK confidential trade secret information relating to a dozen or more products from her GSK e-mail account to her personal account and then forwarded that intellectual property to her conspirators and others. YU XUE also used her GSK computer to download a substantial amount of intellectual property from GSK's network, apparently onto a thumb drive or other portable storage device, to send this information to her conspirators. YU

XUE founded RENOPHARMA along with her co-conspirators to market and sell the stolen intellectual property.

YU XUE primarily worked to develop anti-cancer drugs using proteins to target receptor sites on cancer cells. These types of anti-cancer drugs generally typically cost pharmaceutical corporations more than $1 billion and many years to develop before they can be turned into a commercially successful product. On June 20, 2006, YU XUE signed a Conditions of Employment Agreement with GSK. Pursuant to this agreement, YU XUE agreed that she would abide by GSK's Company Code of Conduct. YU XUE agreed that she would "not engage in any activity in competition with or against the best interests of [GSK] and avoid all conflicts of interest with [GSK] or the appearance thereof." YU XUE specifically agreed not to use any confidential GSK information for her own benefit or the benefit of other companies either during or after her term of employment. YU XUE agreed that all work she performed remained the "exclusive property" of GSK.

YU XUE is regarded as one of the top protein biochemists in the world. She has a Ph.D. in Biological chemistry from the University of North Carolina and an undergraduate degree from Peking University in China. According to her resume, she was the HER3 project co-leader at GSK working on monoclonal antibody design. She previously worked on structure modeling and antibody protein purification. According to her resume, she has successfully humanized and patented at least 4 separate antibodies. Prior to working at GSK, she worked for six years at the University of North Carolina as a research analyst.

10. TAO LI is one of the owners of RENOPHARMA, the corporations which were established to sell the stolen intellectual property. YU XUE e-mailed some of the stolen intellectual property to TAO LI. TAO LI worked in China to sell the stolen intellectual property on behalf of RENOPHARMA. TAO LI's role in the conspiracy included raising funds for RENOPHARMA from various sources. He has a B.S. in Biochemistry from Nankai University in Tianjin, China, a M.S. in Molecular Biology from the Shanghai Institute of Biochemistry, and a Ph.D. in Molecular Biology from the University of North Carolina.

11. YAN MEI is another one of the owners of RENOPHARMA, the corporations which were established to sell the stolen intellectual property. YU XUE e-mailed some of the stolen intellectual property to YAN MEI. YAN MEI worked in China to sell the stolen intellectual property on behalf of RENOPHARMA. YAN MEI also assisted YU XUE with the scientific processes for RENOPHARMA. His wife, LUCY XI, worked at GSK with YU XUE. YAN MEI received a B.S. in chemistry and molecular engineering from Peking University. He received his Ph.D. in Medicinal Chemistry from the University of Iowa in 2009.

12. TIAN XUE is the twin sister of YU XUE. TIAN XUE also worked for RENOPHARMA. According to an e-mail sent by YU XUE, YU XUE intended to hide all the proceeds of her criminal conduct in TIAN XUE's name. TIAN XUE also assisted YU XUE with some of the scientific processes for RENOPHARMA, processes which use the stolen GSK information and trade secret procedures. According to her resume, TIAN XUE has a B.S. in Biochemistry from Jilin University in Changchun, China, a M.S. in Biochemistry from Tsinghua

University in Beijing, a Ph.D. in Immunology from the National Institute for Medical Research in London, and a M.S. in Computer Science and Information Technology from the University of North Carolina.

13. LUCY XI, a/k/a "Lu Xi," was the wife of YAN MEI. LUCY XI worked as a scientist at GSK from July 14, 2008 until November 3, 2015. While at GSK, LUCY XI e-mailed trade secret information from her GSK e-mail account to YAN MEI. LUCY XI currently works for another pharmaceutical company in California.

14. Renopharma, Inc. was created by YU XUE as a U.S. corporation in Delaware on July 16, 2012. Similar corporations called Shanghai Renopharma and Nanjing RenoPharma, Ltd. were created offshore, possibly in China. The evidence shows that the purpose of these corporations was to market and sell the stolen information. RENOPHARMA advertised that it operated as a drug research and development company in China with limited U.S. affiliation. RENOPHARMA touted itself as "a leading new drug research and development company, specialized in providing products and services to support drug discovery programs at pharmaceutical and biotech companies. Our company is headquartered in Nan Jing, Jiang Su, P.R. China."

TAO LI described RENOPHARMA in an e-mail in which he stated that TAO LI and two of his friends [YU XUE and YAN MEI] "are setting up a company [RENOPHARMA] and trying to find investors in China. One of my team members [YU XUE] has been working in a big pharmaceutical company [GSK] for years and is one of the best scientists in the world on protein modeling, especially in antibody humanization and affinity maturation, which most pharmaceutical companies cannot do by themselves. Our plan is: First spend 1-3 years to set up a company in China and offer antibody humanization/affinity maturation services to companies worldwide, then spend another 3-4 years to develop our own antibody drugs."

In another e-mail, TAO LI further describes RENOPHARMA, "The name of my company is Nanjing RenoPharma Inc. It's located at Nanjing, a city in Eastern China, about 150 miles away from Shanghai. So far the company is running well. The major funding was from two private investors. We got some supports from the government, including some national awards and extra fundings, tax waive, and a free 4000 sqf lab space."

According to a Chinese government news article in August 2015, TAO LI was identified as having returned to China for a business start-up after having spent more than 10 years studying and working in the U.S. The article states TAO LI "founded RENOPHARMA Inc. in Nanjing, which is focusing on research and development of antibody drug." The article continues, quoting TAO LI as saying, "In these two years in China, governments in different levels have helped us a lot. This confirmed [to] us that the road we chose is right." TAO LI further states in the article that, "he has received almost 2 million yuan [about $300,000 depending on the volatile exchange rate] financial support from governments in different levels in Nanjing, Jiangsu province. Moreover, his company is enjoying many benefits like first two-year office area for free and bank loan convenience."

On July 15, 2012, YU XUE e-mailed TAO LI and provided more information about RENOPHARMA and their respective roles in this venture. In this e-mail she stated, as translated from Mandarin Chinese:

> I thought about the [company's] operation method last night. [I believe] many years' worth of experience and knowledge are the key [elements] for the company [RENOPHARMA]. Although I am not resigning from my position [at GSK] to go back [to China] at the initial stage, my time and energy spent is not going to be less than anyone else's. As a matter of fact, it will only be more. The risk on the technology and the responsibilities are huge too. Simply using the reasons that I am not returning to China or I have little financial burden to decide not to give me wages doesn't make any sense. If we operate with this methodology, then I will feel like an outsider, like a consultant, and not as a key member of the company. In order to promote motivation, the wage distribution should be that either no one gets paid or everyone gets paid equally. Everyone should give what they can. After reviewing the project proposal, the total for the wage is 1.2 million RMB, split evenly among all three high level managers, each one will get 400,000 RMB which is within your limit. I can leave my 400,000 RMB in the company for you to borrow if you don't have enough funding. Please call me if you disagree.

III. INVESTIGATION

A. Overview

15. In summary, this investigation has revealed that YU XUE was part of a conspiracy which stole proprietary trade secret information primarily from GlaxoSmithKline ("GSK"). YU XUE worked for GSK as a manager in research and development of these biopharmaceutical products. This stolen trade information essentially contained the blueprints and other research to reproduce biopharmaceutical products which GSK sells or intends to sell in the future and would greatly assist a competitor to manufacture the same or similar product in violation of GSK's intellectual property rights. In furtherance of these efforts to profit from the sale of GSK proprietary information, YU XUE and her co-conspirators established RENOPHARMA (Renopharma, Inc. Shanghai Renopharma, Ltd., and Nanjing Renopharma, Ltd.) to facilitate the sale of the stolen trade secret information.

16. YU XUE is assisted in these efforts by YAN MEI, TAO LI, LUCY XI, and TIAN XUE. YAN MEI and TAO LI are attempting to market and sell the stolen GSK information to customers in China through RENOPHARMA. YU XUE, YAN MEI, and TAO LI may also be attempting to patent some drugs which GSK is currently developing ahead of GSK. LUCY XI is YAN MEI's wife and a former GSK employee. Based upon seized e-mails, this evidence reflects that LUCY XI also stole GSK information and provided it to YAN MEI. TIAN XUE is YU XUE's twin sister. TIAN XUE assisted YU XUE with some of the scientific work for RENOPHARMA. YU XUE instructed TAO LI and YAN MEI that her profits from RENOPHARMA be titled in TIAN XUE's name to hide her association with and participation in RENOPHARMA.

17. Seized e-mail records demonstrate that YU XUE transferred the stolen trade secret information via e-mail from her GSK e-mail account to her personal e-mail account. From her personal e-mail account, YU XUE then sent the proprietary trade secret information via e-mail to other members of the conspiracy. In addition, information provided by GSK reflects that YU XUE downloaded over 350 files to an external data storage device on one day alone and downloaded many others during the time she worked at GSK. According to GSK, the files YU XUE downloaded contained powerpoint slides, business operation data, scientific research data, and other proprietary information. Thus, it appears that YU XUE downloaded this information to a thumb drive, external hard drive, or similar data storage device from her GSK computer in order to transport this information to her home computer or otherwise disseminate to her co-conspirators.

18. YU XUE and her co-conspirators act with the apparent intention to profit from this highly valuable stolen information by selling it to GSK's business competitors in China. The stolen information would allow RENOPHARMA or another company to reproduce GSK's current and future pharmaceutical products without having to spend any funds on research and development. The information would also allow YU XUE, TAO LI, and YAN MEI to earn consulting fees from other pharmaceutical companies by using the information stolen from GSK. The information which YU XUE stole from GSK is potentially worth hundreds of millions of dollars or more. YU XUE stole more than a dozen specific products, even products she was not directly researching and developing. According to GSK, the cost to develop one of these types of products which YU XUE stole frequently exceeds $1 billion.

B. Initiation of the Investigation

19. This investigation was initiated on February 20, 2015, when FBI investigators interviewed a person (hereinafter "Informant 1") who provided information about TIAN XUE, the sister of YU XUE. Informant 1 stated that TIAN XUE bragged about being hired by a Chinese pharmaceutical company [RENOPHARMA] and stated that she was being paid very generously. Informant 1 indicated that TIAN XUE was previously employed in the information technology (IT) industry and not in the pharmaceutical industry. Informant 1 indicated that TIAN XUE's sister, later identified as YU XUE, was a researcher at a major international corporation (GSK). Informant 1 also stated that TIAN XUE's and YU XUE's mother, who resides in the People's Republic of China, was also being paid approximately $165,000 a year from a Chinese pharmaceutical company. Informant 1 also stated that TIAN XUE bragged about setting up a laboratory in the Philadelphia, Pennsylvania area on behalf of the same Chinese pharmaceutical company [RENOPHARMA]. TIAN XUE also bragged to Informant 1 that a "big payday" was coming in the future from the Chinese pharmaceutical company. After receiving this information from Informant 1, FBI investigators attempted to corroborate and confirm the information provided.

C. GSK Trade Secret Information

1. Overview

20. YU XUE was involved in developing biopharmaceutical drugs for GSK. Many biopharmaceutical drugs are proteins which bind to receptor cells to cause the cell to act in a certain manner. Biopharmaceutical drugs can be very profitable, but they are also very expensive to research and develop and difficult to manufacture. Many of these drugs are developed to treat cancer or other serious ailments.

21. A concrete example is helpful to understand the business of biopharmaceutical drug research, development, and marketing. In the 1990's, another pharmaceutical company, Genentech, researched and developed an anti-cancer drug called Herceptin. In some forms of cancer, such as breast cancer, certain receptors on human cells which control growth and reproduction (called "HER2" receptors) may become "overexpressed." This means that a normal human cell might have, for example, 20,000 HER2 receptors, while a cancer cell might have 2 million HER2 receptors. Consequently, these cells reproduce uncontrollably forming a tumor. In layman's terms, Herceptin is a protein which binds with the HER2 receptor and shuts it off or slows it down, significantly impacting or slowing the cancer. Genentech spent a lot of money to research and develop Herceptin, but now they generate billions of dollars in revenue each year from selling Herceptin on the global market.

22. There are other receptors on cells which may impact other forms of cancer. One of the potential receptor sites is known as HER3. There are no current commercially available products which bind specifically to HER3. GSK and other pharmaceutical companies have been attempting for some time to develop a drug which binds to HER3 in a similar manner to the way that Herceptin binds to HER2. Correspondingly, GSK hopes to profit from the sale of such a drug in the same manner as Genentech did with Herceptin. YU XUE was one of the scientists at GSK working on this problem. Some of the items which YU XUE stole from GSK pertain to potential HER3 drugs. These potential drugs are often referred to in the scientific documents as "monoclonal antibodies" (mAb or moAb). Monoclonal antibodies are made by identical immune cells that are all clones of a unique parent cell (in contrast to polyclonal antibodies which are made from several different immune cells). One of the difficult challenges for pharmaceutical companies is to find an antibody which successfully "binds" to the target cell. A second difficult challenge is called humanization - which is the process of transforming an antibody which works well in animal experiments into an antibody which works well in humans. A third difficult challenge is in the manufacturing process – it is difficult to harvest the specific antibodies produced and purify the final product in order to safely inject it into the human body. The GSK information which YU XUE stole concerned all of these challenges. In addition, YU XUE stole information pertaining to other GSK products and products in development, even products she was not researching.

2. Search Warrants

23. During the course of the FBI investigation, the FBI sought and obtained e-mail communications between the targets of the investigation through a series of warrant to search the targets' personal e-mail accounts. On June 29, 2015, the Honorable Marilyn Heffley, United States Magistrate Judge for the Eastern District of Pennsylvania, signed a warrant to authorize the search of YU XUE's personal e-mail account. Google subsequently provided the FBI the account records pursuant to the search warrant which contained e-mails between XUE's personal e-mail account and various other co-conspirators, including YAN MEI, TAO LI, and TIAN XUE. These e-mail and internet messaging records showed that YU XUE forwarded some of the stolen proprietary GSK information to YAN MEI, TAO LI, and TIAN XUE with the apparent intention to resell this stolen information for pecuniary gain. YU XUE also forwarded some of the stolen trade secret information to another scientist working at a different international pharmaceutical corporation (hereinafter referred to as "Person 1").

24. In the same manner, on August 17, 2015, the Honorable Timothy R. Rice, United States Magistrate Judge for the Eastern District of Pennsylvania, signed warrants to authorize the search of four Google accounts belonging to YAN MEI, TAO LI, YU XUE's husband, and TIAN XUE. Google subsequently provided those records, primarily consisting of e-mails and internet messaging records. These records further showed YU XUE, TAO LI, YAN MEI, TIAN XUE, and LUCY XI transmitting GSK trade secret and otherwise confidential information amongst themselves and discussing the overall RENOPHARMA conspiracy.

25. On November 17 and November 19, 2015, the Honorable David R. Strawbridge, United States Magistrate Judge for the Eastern District of Pennsylvania, signed warrants to authorize the search of YU XUE's GSK office, YU XUE's GSK work computer, and LUCY XI's GSK work computer. Similar and corroborating evidence was obtained during these searches as was found by the FBI in previous searches.

3. Specific Instances

26. After obtaining through the search warrants the communications between the conspirators which included trade secret and otherwise confidential information, the FBI interviewed at least four different GSK scientists and showed them the seized e-mails. The GSK scientists identified 16 e-mails which YU XUE transmitted which contained trade secret information. Most of the trade secret information pertains to specific GSK manufacturing processes. Some of the trade secret information pertained to specific monoclonal antibodies developed by GSK. They identified numerous other documents which YU XUE sent which contained confidential, but not trade secret, information.

27. In addition, the FBI showed the seized e-mails to an expert witness retained by the government who was not associated with GSK (hereinafter "Expert 1"). Expert 1 has more than 35 years' experience in researching and developing biopharmaceutical products. He formerly worked as a Vice President for Bristol-Myers Squibb for Biologics Strategy and Biopharmaceutical Operations. He now operates a biopharmaceutical consulting company. He

currently sits on the board of directors of ImmunoGen. As such, he is uniquely qualified to understand both the science and the business of biopharmaceuticals. Expert 1 reviewed the seized documents and also opined that they contained trade secret information.

28. The documents which contain trade secret information include:

a. On July 2, 2012, YU XUE e-mailed TAO LI. Attached to the email is an internal GSK PowerPoint presentation titled "Anti-HER3 mAB" and identified a specific GSK antibody under development. The attachment was identified by GSK officials as containing both GSK trade secret information and other confidential, but not trade secret, information. The powerpoint contained GSK's strategy for developing an anti-HER3 monoclonal antibody and information on a specific candidate for anti-HER3 for clinical trials. The powerpoint outlined the development risks and opportunities of a specific anti-HER3 antibody candidate for GSK. The powerpoint opined that this candidate "would provide GSK with [a] package similar to Herceptin/HercepTest that showed great therapeutic value to cancer patients." It also provided the pre-clinical data in support of the candidate antibody and a thorough explanation of how it worked. The powerpoint also discussed the current status of other pharmaceutical corporations' anti-HER3 research and development, including Merrimack, Roche, ImmunoGen, and Amgen. The powerpoint opined that the GSK candidate "should represent [a] 'bio-better and bio-superior' system in comparison to existing competitors." The powerpoint further explained, "We can conclude . . . we can kill [the cancer] tumor [in a] different way that will complement each other to maximize the specific [cancer] cell killing." The powerpoint provided a draft clinical development strategy. According to GSK officials, this kind of sensitive trade secret information "would never be given out." [Document 35.]

b. On January 1, 2013, LUCY XI e-mailed her husband YAN MEI. The subject line of the e-mail read, "a good paper to read." In the body of the e-mail LUCY XI stated to YAN MEI, "You need to understand it very well. It will help you in your future business [RENOPHARMA]." Attached to the email is a GSK document titled, "Point to Consider in Determining Critical Quality Attributes for Therapeutic Monoclonal Antibodies." The attachment retained the GSK letterhead on each page. The attachment was identified by GSK officials as containing GSK trade secret information. The GSK document provided a current summary of GSK research into monoclonal antibodies. The document provided descriptions, schematic representations, and biological summaries of the antibodies which GSK used in its research and development projects. According to GSK officials, the document contained the business plan for GSK's quality control unit and constituted very sensitive information. [Document 33.]

c. On January 25, 2013, YU XUE e-mailed YAN MEI. Attached to the email were two documents. The first document is a powerpoint presentation titled, "Investigate fragmentation of aBCMA" written by YU XUE. The slides contained computer modeling of a specific GSK antibody. The second attachment contained another computer model. The first attachment was identified by GSK officials as containing GSK Trade Secret information. [Document 32.]

d. On April 11, 2013, YU XUE e-mailed a GSK report from her GSK account to her personal e-mail account. The report detailed the design of experiment, validation, and platform method instruction and verification of analytical method for the quantitation of host cell proteins in monoclonal antibodies. The report described in very specific detail GSK's procedures to test monoclonal antibodies. The report provided the list of reagents and assay solutions used by GSK scientists. The report then provided GSK's step-by-step instructions on how to perform these scientific tests. The report further provided GSK's validation procedures to determine if the product falls within the requisite standards. As such, GSK officials stated that the document contained GSK trade secret information relating to these processes. [Document 56.]

e. On September 25, 2013, YU XUE e-mailed TAO LI and YAN MEI a GSK document. On January 8, 2014, YU XUE re-sent the same document to YAN MEI. Later that day, YAN MEI forwarded that document to TAO LI. The document is clearly identified as being GSK information and clearly marked "Confidential" on the top of each page. The document contained a GSK research report concerning GSK scientific research on specific monoclonal antibody candidates targeting the HER3 receptor. The document described in detail the "binding" capabilities and other important scientific characteristics of the antibody candidates. The report concluded that the scientific testing revealed that two specific candidates warranted further testing based upon the positive results achieved. Consequently, the GSK officials stated that this document contained highly sensitive trade secret information concerning GSK research into specific products in development. [Document 9.]

f. On November 8, 2013, YU XUE e-mailed a GSK powerpoint slide to Person 1, who works as a scientist at another major international pharmaceutical corporation. The powerpoint was authored by YU XUE. The front page of the powerpoint contained GSK's logo. The powerpoint is titled, "Structure, Computation, and Biopharmaceuticals." The powerpoint contained a summary of YU XUE's biopharmaceutical research for GSK. The powerpoint described GSK's procedures for developing and humanizing a monoclonal antibody. It contained models and descriptions of specific GSK antibody candidates targeting HER3 receptors. The powerpoint contained specific recommendations for GSK scientists working on these projects as well as hypotheses for future research. GSK officials stated that this document contained trade secret information as it pertained to specific products in development and specific GSK procedures. [Document Z.]

g. On November 27, 2013, YU XUE e-mailed a powerpoint presentation from her GSK e-mail account to her personal e-mail account. The presentation was titled "Antibody Drug(label) Conjugates Design" and indicated that it was authored by YU XUE. The presentation summarized YU XUE's scientific research for GSK, including computer modeling of specific antibodies. The powerpoint described GSK's specific procedures for producing and developing monoclonal antibodies, including step-by-step instructions. The document described the "final conjugation conditions" and an analytical results summary. GSK officials stated that the document contained GSK trade secret information. [Document B.]

h. On January 19, 2014, YU XUE e-mailed two GSK documents to TAO LI.

TAO LI then forwarded those documents on the same day to YAN MEI. Knowing that the document contained highly confidential GSK trade secret information, in the body of the e-mail, YU XUE instructed TAO LI, "*Please do not spread.* Thank you." The first document was a powerpoint presentation titled, "Anti TNF alpha BioBetter Program Introduction." The powerpoint presentation included GSK research into ways to improve existing biopharmaceutical products by extending the half-life of monoclonal antibodies and extending dosing intervals. The document discussed the various diseases which these products could treat and opined that this development presented a "significant commercial opportunity" for GSK. The document referenced the fact that pharmaceutical corporations sold more than $10 billion of these types of biopharmaceutical products each year. The document discussed the risks associated with the development of this kind of product and whether the development would interfere with other existing patents. The second document was a Word document summarizing the same proposal in written form. This document explained the objectives and the concept to improve the mechanism of action. It explained the target validation requirements for development. The document explained the potential benefits to patients on the improved pharmaceutical products. It also provided a manufacturing strategy and a projected sales forecast if such a product was developed. GSK officials explained that both of these documents contained GSK trade secret information. [Document 15.]

i. On February 17, 2014, YU XUE e-mailed a confidential GSK report from her GSK e-mail account to her personal e-mail account. Later that evening, YU XUE e-mailed the same document from her personal e-mail account to YAN MEI. YAN MEI then forwarded the same document to TAO LI on the same date. The document was a quality control report on a specific GSK biopharmaceutical product. The bottom of each page was marked "confidential." At the top of the first page, the document stated, "*If this template is used to provide information to external 3rd party, seek prior approval . . . .*" The document described the specific GSK procedures for the construction of plasmids, which are used to grow monoclonal antibodies. The document contained the exact DNA sequence to build the plasmid. As such, GSK officials stated that this document contained confidential trade secret information. [Document C.]

j. On February 19, 2014, YU XUE e-mailed TAO LI and YAN MEI a Word document containing a report titled, "Mouse anti-HER antibody humanization and surface cysteine mutation for conjugation." The document contained GSK's humanization strategy for a specific product. The document contained the exact protein sequences needed to construct the product. The document also summarized the binding kinetics of anti-HER2 antibodies. GSK officials stated that this document contained GSK trade secret information. [Document 21.]

k. On March 3, 2014, YU XUE e-mailed Person 1 a GSK powerpoint presentation titled, "An Introduction to Microbial & Cell Culture Development." Each slide contained GSK's logo. The document summarized GSK's internal procedures for developing cell cultures used in biopharmaceutical research. The document showed how GSK structured its operations. The document contained diagrams of the machinery used by GSK to manufacture cell cultures. The document also discussed the specific types of cells which GSK used. One slide was titled, "Holy Grail of Cell Line Selection" – giving an indication of the importance of that information to GSK. The document discussed ways to improve cell environment to increase productivity. GSK officials stated that this document contained trade secret information relating to specific GSK scientific processes. [Document U.]

l. On March 3, 2014, YU XUE e-mailed Person 1 a GSK powerpoint presentation training lecture titled, "An Introduction to Downstream Processing & Downstream Process Development (DPD)." The presentation described GSK's purification procedures in manufacturing biopharmaceutical products. In order to make a biopharmaceutical product, GSK grows the proteins (monoclonal antibodies) in huge vats, but these proteins must be purified before they can be injected into a patient. GSK's DPD department thus plays a crucial role in manufacturing biopharmaceutical products. In summarizing DPD's role in the manufacturing process, one slide quoted a GSK scientist as saying, "They give us something that looks like sewer sludge and we have to turn it into something that you are willing to inject into your veins." The powerpoint slide described precisely how GSK purified biopharmaceutical products, including diagrams and specific instructions. The powerpoint described the procedures GSK used to remove impurities and harvest the monoclonal antibodies from the "sewer sludge." The powerpoint identified the specific filtration process used by GSK. The powerpoint further described the procedures used by GSK to prevent viruses or other impurities from entering the final product. The powerpoint described the validation procedures used by GSK to ensure a high quality product that passed regulatory muster. Finally, the powerpoint provided GSK's material and operating costs for implementing these procedures and strategies for limiting those costs. GSK officials stated that this powerpoint slide contained GSK trade secret information regarding these specific processes. [Document W.]

m. On March 3, 2014, YU XUE e-mailed Person 1 seven GSK documents. GSK officials stated that each of the following documents contained trade secret information. [Document X.]

(1) The first document was titled, "An Introduction to Downstream Process Development." This document contained almost exactly the same information as Document U described in the previous paragraph, although in an easier to read format.

(2) The second document was a powerpoint slide titled, "Overview of Small-scale Downstream Process Characterization for Late-phase Assets." This document further described GSK's commercial manufacturing processes and control strategy. In particular, the document described how GSK removed impurities during the manufacturing process and harvested the biopharmaceutical products. The document provided diagrams showing the exact materials GSK used to manufacture biopharmaceutical products. The document described the normal operating ranges and proven acceptable ranges for final GSK products.

(3) The third document was a GSK powerpoint slide entitled, "Lab Rotation Program." Each page of this presentation contained GSK's logo. The document described GSK's manufacturing operations activities. The document provided GSK's overall "vision and strategy" for manufacturing operations. The document described GSK's manufacturing capacity and equipment capabilities.

(4) The fourth document was a GSK powerpoint presentation entitled, "Virus Clearance Validation in DPD." The document described GSK's procedures to ensure that their end product was safe and did not contain any viruses. The document described the step-by-step details for GSK's procedures for purifying monoclonal antibodies. Finally, the document described GSK's costs for these quality control procedures and their regulatory responsibilities.

(5) The fifth document was a GSK powerpoint presentation titled "BioPharm Lab Rotation Program – Introduction to Preparative Chromatography & Process Development Fundamentals." The powerpoint described GSK's procedures for protein chromatography which GSK uses in the manufacturing process. The powerpoint described exactly how GSK's chromatography machines were designed and configured. The powerpoint also described the particles used in GSK's chromatography processes and the different types of chromatography used by GSK. The powerpoint also described GSK's development sequences for new chromatography processes for monoclonal antibodies.

(6) The sixth document was a GSK powerpoint presentation titled "Harvest and Filter Unit Operations." The document described GSK's procedures for filtering the impurities and harvesting the monoclonal antibodies during the manufacturing process. The document described types of centrifuges used by GSK and GSK's operating procedures for those machines. The document described the types of filters used by GSK and their construction.

(7) The seventh document was a 45-page GSK powerpoint presentation titled "Downstream Platform Approaches for Biopharm Purification." This document also described GSK's procedures for filtering and harvesting all types of GSK's biopharmaceutical products, including monoclonal antibodies and other products. The document contained step-by-step instructions, including the types of resins GSK's uses, GSK's wash buffer components, and the types of cleaning buffers used by GSK. The document also described GSK's processes for ensuring that the end product does not contain any viruses or other impurities.

n. On March 9, 2014, YU XUE e-mailed TAO LI and YAN MEI a one-page document regarding fibroblast growth factor receptors. The document contained information on a specific product being developed by GSK for anti-cancer treatment. GSK officials stated that this document contained trade secret information. [Document 23.]

o. On February 3, 2015, YU XUE e-mailed a GSK document from her GSK e-mail account to her personal e-mail account. A few minutes later, YU XUE forwarded that same document to TAO LI and YAN MEI. The forwarding information on the e-mail revealed to TAO LI and YAN MEI that the document came from YU XUE's GSK account. The document contained GSK's specific procedures and instructions on how to filter a monoclonal antibody during the manufacturing process. GSK officials stated that this document contained trade secret information. [Document G.]

p. On August 17, 2015, YU XUE e-mailed a 17-page GSK report to TAO LI and YAN MEI. The report contained information on a specific product being developed by GSK for anti-cancer treatment. The report described the biology of the product and how it worked. GSK officials stated that this document contained GSK trade secret information. [Document 36/49.]

D. Confidential GSK Information

29. In addition to the trade secret information, YU XUE and her conspirators also stole a considerable amount of data from GSK which does not meet the definition of trade secret information, but remained confidential information with economic value. Some of this confidential, but not trade secret information, was contained in the e-mails summarized above. I note two additional e-mails here.

a. On February 13, 2012, YU XUE sent LUCY XI a GSK powerpoint presentation titled "Potent Antibody Drugs by Design." LUCY XI then forwarded that presentation to YAN MEI. GSK officials stated that the powerpoint contained confidential, but not trade secret information.

b. On September 3, 2012, YU XUE sent an e-mail to TAO LI, YAN MEI, and TIAN XUE. Attached to the e-mail was powerpoint presentation titled "Structure guided design of antibodies for therapeutic application." The first slide indicated that it was written by "Yu Xue, Ph.D. Renopharma." The powerpoint presentation described the services that RENOPHARMA offered. The presentation described the results of tests on potential antibodies currently being researched. While not trade secret information, the powerpoint provided research and other information which YU XUE obtained through her work at GSK.

E. Data Protection

30. According to GSK officials, trade secrets are vital to pharmaceutical corporations such as GSK. GSK spends a lot of time and money developing pharmaceutical products and the processes to manufacture those drugs. GSK derives value from trade secret information by developing and selling pharmaceutical products. If their competitors received this information, GSK would be injured financially because their competitors would be able to develop the same or similar products to sell. Since their competitors did not incur the substantial development costs for the product, they would be able to sell the same product at a substantially lower price which would obviously impact GSK's revenues and profits. Consequently, GSK and other pharmaceutical companies protect this information and attempt to keep it secret by, inter alia, having their employees sign agreements restricting the use of this information. GSK and other pharmaceutical companies require their employees to be trained on handling and protecting confidential information. GSK and other pharmaceutical companies also use various computer programs in an attempt to prevent their employees from stealing data.

31. GSK officials indicated that all information generated within the company is considered GSK's proprietary information and belongs to GSK. GSK information must not be released externally unless it has been "Approved for External Release," to a third party under an appropriate confidentiality agreement, or a disclosure required by law. GSK's staff who receive,

create, or handle GSK's proprietary information are responsible for categorization in accordance with the "Procedures for the Protection" of GSK's information. GSK's employees are forbidden from using proprietary information for other business or personal activities from which they, or others connected with them, might personally benefit. All GSK employees must ensure that electronic confidential information is only submitted or stored within applications, external web sites, electronic repositories, PCs, mobile devices or other IT systems that have restricted access to individuals based on a need to know basis and are managed by GSK or a third party that GSK has contracted with to process and manage the information.

32. GSK's policy on the acceptable use of IT indicates it is an unacceptable practice to store GSK's data on personal equipment such as home computers, external hard drives, PDAs or USB devices. Furthermore, forwarding, posting, or uploading GSK's confidential information to public e-mail accounts (e.g., Google, Yahoo) or any other external website not approved by GSK is forbidden.

33. Regarding YU XUE, the GSK officials stated that YU XUE did not have permission to transfer confidential information to third parties or external internet accounts, such as her personal e-mail account. The GSK officials stated that YU XUE would not be permitted to share GSK information without having prior authorization. GSK's representatives further indicated this authorization would only be granted after a panel of five entities within GSK collectively agreed that authorization should be granted. GSK also stated that it would be outside GSK policy to e-mail GSK information to a third party or a personal e-mail account.

34. All GSK employees are required upon acceptance of employment with GSK to read and acknowledge their understanding of GSK's Code of Conduct policy. The Code of Conduct policy is GSK's overarching policy which encompasses the protection of GSK's proprietary, trade secret information. Employees are required to read and sign the Code of Conduct policy on an annual basis. Each time an employee such as YU XUE or LUCY XI logged onto a GSK computer, they would be required to acknowledge a banner which read: "This computer system is the property of GlaxoSmithKline and is intended for operation by authorized users. You agree to comply with the company's established security and computer use policies and procedures and acknowledge that GlaxoSmithKline has discretion to monitor, use, record, or disclose any data or communications stored or transmitted on the system at any time."

35. Regarding LUCY XI, she worked as scientist for GSK in their Biopharmaceutical Analytical Sciences section from 2008 until she resigned that position on or about November 3, 2015 to take a position with another pharmaceutical company. LUCY XI was subject to the same conditions during her period of employment at GSK. LUCY XI did not have permission from GSK to transfer the GSK confidential information to third parties.

F. Knowledge and Intent

36. E-mails seized from these search warrants further established that the conspirators acted with the specific intent to steal GSK data and knew that the data obtained from GSK was

stolen.

a. On April 1, 2012, YU XUE e-mailed a business plan for a new company called "Conjutech" to TIAN XUE. The plan was written in Chinese. It appears that this was the same general idea as RENOPHARMA with a different name. In the body of that e-mail, YU XUE wrote, "DO not give to her [unknown who "her" is] for now, you can have a look at it. It takes me a lot of time to finish it. Be very careful to send it out." On the same date, YU XUE e-mailed the same business plan to YAN MEI. YAN MEI sent a similar business plan to LUCY XI on March 21, 2012. Thus, both TIAN XUE and LUCY XI certainly knew what YU XUE intended to do. Furthermore, since LUCY XI signed a similar employment agreement with GSK which prohibited this kind of competition, based upon my training and experience and the evidence gathered during this investigation, I believe that LUCY XI certainly knew that YU XUE actions violated that agreement.

b. On June 20, 2012, YU XUE messaged with TAO LI about a draft RENOPHARMA document which they intended to use to market the stolen data at a pharmaceutical convention. YU XUE instructed TAO LI to delete a reference to "philadelphia PA" on the document. TAO LI asked, "why?" YU XUE replied, "Alot of people from GSK attend [sic]" the conference – demonstrating her concern that the stolen data might be traced back to her.

c. On June 28, 2012, TAO LI sent an e-mail to YUE XU which stated, "We 4 [TAO LI, YU XUE, YAN MEI, and another person] may need [to] discuss together about the organization of the company [RENOPHARMA] . . . . You [YU XUE] are the core person in this project and you need to think about how to protect yourself." In other words, TAO LI wanted to discuss with his conspirators how they were going to protect themselves from being apprehended by law enforcement.

d. On July 8, 2012, YU XUE e-mailed the RENOPHARMA business plan to TIAN XUE. While written in Chinese, the cover page stated that RENOPHARMA would be providing monoclonal antibody humanization services. TIAN XUE knew that she was not an expert in monoclonal antibody humanization, therefore, the services obviously would be provided by YU XUE who was an expert in that field.

e. On July 2, 2012, YU XUE messaged with TAO LI and stated that she would send HER and EGFR "stuff" from her "personal computer". TAO LI replied, "OK." YU XUE stated that it was too dangerous to send this data from "the company" [GSK]. TAO LI replied, "yeah, we should be very careful." Thus, based upon my training and experience and the evidence gathered during this investigation, I believe YU XUE intended to send proprietary GSK research data relating to HER or EGFR receptors from her home computer, rather than her office computer, because she was concerned that she might get caught stealing this data from GSK. Acknowledging their criminal conduct and the conspiracy, TAO LI agreed.

f. On July 3, 2012, YU XUE messaged with TAO LI. TAO LI asked YU XUE if she had time to talk on the phone. YU XUE replied that she did. TAO LI asked YU

XUE, "is it ok to call your office? People around you?" YU XUE replied that it was acceptable for her to talk because she had her "own office." YU XUE then stated, "*hopefully nobody listen the phone* [sic]." Thus, based upon my training and experience and the evidence gathered during this investigation, I believe TAO LI and YU XUE intended to discuss details of the conspiracy to steal proprietary information from GSK during this phone conversation. At the time of this message exchange, YU XUE was sitting in her office at GSK. TAO LI wanted to ensure that there were no other Chinese-speaking GSK employees around to ensure that they would not be caught discussing the details of their conspiracy to steal proprietary information from GSK. YU XUE indicated that her office was a private place to talk because there were no other Chinese speakers around, but expressed concern that her phone might be wiretapped, again, demonstrating her knowledge that her conduct was criminal.

g. On July 31, 2012, YAN MEI messaged with LUCY XI about YU XUE's future plans. LUCY XI told YAN MEI that YU XUE intended to quit her job at GSK in one or two years. LUCY XI explained that YU XUE wanted to "*get the money first*." YAN MEI replied, "that is our plan" – meaning that once the stolen GSK data is resold, all of the conspirators will have enough money to quit their jobs. LUCY XI replied, "I think it is reasonable to do that" and "that is a good solution." LUCY XI then stated cryptically, "Dont offer details until they check for Yue's [YU XUE] status."

h. Later that afternoon, YAN MEI and LUCY XI exchanged more messages. YAN MEI explained to LUCY XI that he had almost completed the "R&D plan" and "CRO plan" for RENOPHARMA. LUCY XI suggested that YAN MEI "check some books of negotiation and leadership" in order to build up his skill set for his job at RENOPHARMA. LUCY XI commented, "You need to build up thoese [sic] skills." LUCY XI then suggested that YAN MEI "be humble and receptive" at RENOPHARMA business meetings and "Dont assume you are naturally good." LUCY XI related, "Some people are naturally better than others in negotiation, building relatioship [sic] and leadership, but everyone has room to grow and improve".

i. On August 28, 2012, YAN MEI messaged with LUCY XI about YU XUE. LUCY XI complained to YAN MEI that YU XUE had been "annoying" her recently. YAN MEI counseled LUCY XI, "don't lose [your] temper" with YU XUE. LUCY XI replied, "I won't . . . *she is the queen*." At the end of the conversation, LUCY XI stated, "Yu [YU XUE] showed me an email she drafted." Discussing the terms of a RENOPHARMA deal, LUCY XI suggested, "I think you should take out the 10% to 25% out. It is too much. lets just use 30% as the starting point." Based upon my training and experience and the evidence gathered during this investigation, I believe that this e-mail demonstrates YAN MEI and LUCY XI's knowledge that YU XUE was the critical piece of the conspiracy to steal information from GSK and jointly profit from it and were willing to tolerate her idiosyncrasies. Moreover, the e-mail further shows LUCY XI's participating in the fraud conspiracy by reviewing YU XUE's work and making suggestions regarding business operations.

j. On September 4, 2012, LUCY XI continued to press YAN MEI about his RENOPHARMA work. Apparently, both YAN MEI and TAO LI were working on a presentation. LUCY XI instructed YAN MEI, "You need to practice before you present." LUCY XI then stated, "I told Yu [YU XUE] that you did not send [a] copy [of the presentation] to her because Tao [TAO LI] wants to combine yours with his and then Tao [TAO LI] will send it to Yu [YU XUE]." LUCY XI chastised YAN MEI, "Be careful in the future. Dont disappoint me anymore. it is really stupid the way you handle stuff."

k. On October 11, 2012, YU XUE e-mailed YAN MEI a RENOPHARMA powerpoint presentation titled, "Structure guided design of antibodies for therapeutic application." The powerpoint presentation discussed how RENOPHARMA would engineer the next generation of antibodies. The presentation discussed RENOPHARMA's expertise in humanization, affinity maturation, and manufacturing – all the work YU XUE performed for GSK. The presentation showed computer generated models of potential antibody candidates and how they would bind to the receptors.

l. On October 11, 2012, YU XUE messaged TAO LI and stated, "I suggest do not send any email to them. we can TC [teleconference] but do not send them." Based upon my training and experience and the evidence gathered during this investigation, I believe that YU XUE did not want TAO LI to forward a trade secret or confidential GSK presentation to someone outside of RENOPHARMA. YU XUE suggested that they have a teleconference instead. A few minutes later, TAO LI messaged with YU XUE about the same presentation. YU XUE indicated that she was not "comfortable" sending the stolen file to another company in China. YU XUE instructed TAO LI, "*do not give any slide copy to them*" because it was "*too dangerous*." Thus, I further believe YU XUE was reluctant to turn over the stolen GSK powerpoint presentation to a third party for fear that she might get caught.

m. On November 26, 2012, YAN MEI e-mailed TAO LI and YU XUE a published research paper titled, "Advances in Targeting HER3 as an Anticancer Therapy." The paper was published on October 10, 2012. TAO LI responded that he did not see "the one developed by GSK" in the published paper. TAO LI continued, "It seems risky to work on anti-HER3 only. Good thing is that not too many companies are working on this. Any comments Yu?"

n. On January 15, 2013, TAO LI messaged with YU XUE. YU XUE told TAO LI that she "got detailed information [presumably from GSK] about how to sequence mouse antibody in hybridoma cells." YU XUE told TAO LI that she would send him that information "from her home computer tonight." TAO LI instructed YU XUE, "Let me get it next time I visit you. *Don't forward using e-mails*." Based upon my training and experience and the evidence gathered during this investigation, I believe that TAO LI cautioned YU XUE not to send the trade secret information by e-mail and stated that he would pick up that information in person to prevent them from getting caught sending the stolen GSK data.

o. On April 2, 2013, TAO LI sent an e-mail to YAN MEI about a researcher in Wisconsin who was charged with stealing details of a cancer-fighting compound. YAN MEI replied, "*This sounds scary*." Based upon my training and experience and the evidence gathered during this investigation, I believe that TAO LI sent the e-mail as a warning to his conspirators that they needed to be careful stealing GSK data to prevent themselves from being caught.

p. On October 11, 2013, LUCY XI sent YAN MEI an e-mail from her GSK account. In the e-mail LUCY XI forwarded an e-mail she had received from another GSK employee attaching a newspaper article regarding two scientists working at Eli Lilly who had been indicted for stealing trade secrets.

q. On October 11, 2013, YU XUE sent TAO LI and YAN MEI an e-mail with a link to a newspaper article about an Eli Lilly scientist indicted for stealing trade secrets. Based upon my training and experience and the evidence gathered during this investigation, I believe that YU XUE sent the e-mail as a warning to her conspirators that they needed to be careful stealing GSK data to prevent themselves from being caught. In a subsequent exchange of messages later that day, YU XUE warned TAO LI that "all GSK [employees] had a meeting this morning – presumably to discuss data protection in light of the Eli Lilly case. YU XUE stated that GSK set up a "hotline" – presumably for GSK employees to report data breaches. YU XUE then commented "*so scary*" demonstrating her fear of being caught for stealing GSK proprietary data. YU XUE then instructed TAO LI, "Please do not send any DOc contained [sic] GSK data out" and "DO not mention Her3 [human receptor research]."

r. On October 23, 2013, a person e-mailed TAO LI's wife and stated, "When you get a chance can you please ask your husband for information or a confidentiality agreement for his biochemical company. I want to test the levels of a naturally occurring item in certain products before and after the manufacturing/processing process." TAO LI's wife attached a confidentiality agreement and replied, "I asked my husband Tao. He said his company can offer the service." The e-mail chain was forwarded to TAO LI showing that TAO LI certainly understood the importance of a confidentiality agreement.

s. On October 27, 2014, YU XUE exchanged e-mails with Person 1. Person 1 asked, "I have a question for you and the company in china: who is the real and practical owner? I mean the person who has absolute control of this company? Do you have the shares sorted out?" YU XUE replied that the owners were "Myself, Litao [TAO LI] and Meiyan [YAN MEI]. We three make up the company [and] are owner[s]. I have absolute control of company. If we have really good data in the near future, I will quit the job in GSK right away. My stocks is occupied by taoli [TAO LI] for now, but we have law document notarized. I have the highest stock share which is 30%, taoli [TAO LI] and yanmei [YAN MEI] each has 21% share, the reset of share for the people invest money and also some left over for the future key people [who] join the company."

t. Person 1 replied to the previous e-mail with a different proposal. He noted that he held the patent on an antibody and stated "I have planned for making up a company for some time." Person 1 suggested that YU XUE form another company with him. Person 1 suggested that they "co-patent" the antibodies that YU XUE was currently working on. He noted that he had financial "resources" he could invest in the company and connections with a research technology fund in Switzerland for additional investment funds. Person 1 then began to criticize YU XUE's contract with RENOPHARMA. He opined that YU XUE's 30% share in the company was too low and that if TAO LI (21%) and YAN MEI (21%) joined forces, they would control a larger share of RENOPHARMA. Person 1 told YU XUE that she should control "more than 50%" of the company. Person 1 told YU XUE that she "should NOT quit" her job because many "startups die after one or two years." Based upon my training and experience and the evidence gathered during this investigation, I believe that Person 1 may have been trying to get YU XUE to form a company with him so that he could profit from either YU XUE's expertise or the stolen GSK information.

u. On May 4, 2012, TIAN XUE messaged with YU XUE. TIAN XUE asked, "how is your presentation?" YU XUE replied, "It is very good." YU XUE asked if TIAN XUE received the "business plan" and commented "your nameis there." TIAN XUE replied, "Yes I got it and read it." YU XUE asked, "Are you ok with your discription [sic]?" TIAN XUE replied, "[Yes,] very much." Concerned for their safety and knowing what they were doing was illegal, TIAN XUE asked, "is ok you sent this plan from your company email?" YU XUE assured her, "it is ok."

G. Finances and Proceeds

1. Seized E-mails

37. The conspirators discussed how they would hide YU XUE's criminal proceeds in in several e-mails. On June 26, 2013, YU XUE sent an e-mail to YAN MEI and TAO LI. In the e-mail, YU XUE explained that TIAN XUE is going to contribute "100%" to RENOPHARMA's work. YU XUE further indicated the server and electronic system can be set-up by TIAN XUE and left with TIAN XUE in the U.S. YU XUE also indicated that all benefits (salary, stocks, and bonus) belonging to YU XUE should be put in TIAN XU's name. YU XUE stated, "She (TIAN XUE) could use her real name and represent me. If we need to go back to China to process legal documents, she (TIAN XUE) will go with me as well." Based upon my training and experience and the evidence gathered during this investigation, I believe that YU XUE instructed YAN MEI and TAO LI to hide the proceeds of the fraud scheme in the name of her sister, TIAN XUE, in an attempt to prevent the criminal conduct from being traced back to YU XUE.

38. On August 28, 2012, TIAN XUE messaged with YU XUE. YU XUE and TIAN XUE discussed RENOPHARMA's finances. YU XUE expressed confidence that she could convince the Chinese government to invest in RENOPHARMA through a "special government fund." YU XUE stated that she intended to travel to China to meet with these government officials to persuade the Chinese government to invest in RENOPHARMA. YU XUE related that she planned to give two persons expensive gifts because they are the most critical people in persuading the government to invest. YU XUE stated that she intended to give a 2 hour presentation in China in September for "government officials". She stated that she hoped that the government would invest 15 million yuan into RENOPHARMA.

39. In the same message exchange between YU XUE and TIAN XUE, YU XUE forwarded a letter she sent to associates in China. In the letter, YU XUE opined that in most biopharmaceutical companies, the investors hold only 10-25% of the company, though some

may go up to 30%. YU XUE stated that she believed that the value of the company would greatly increase "mainly [due] to technical contribution" – (i.e. the stolen GSK information). YU XUE stated that if the investors held too many shares, the scientists working for the company would not be properly motivated to develop products. Based upon my training and experience and the evidence gathered during this investigation, I believe that YU XUE wanted to ensure that she would receive the bulk of the profits from the stolen information.

40. After reading the letter, TIAN XUE stated that she was very impressed with YU XUE's business skills. TIAN XUE indicated that she wanted to perform more work for RENOPHARMA. TIAN XUE asked YU XUE, "what can I do now [to help RENOPHARMA succeed]?" YU XUE replied, "you only need to take care of the kids. I'll take care of the rest." This confirmed that the primary driving scientific force behind RENOPHARMA was YU XUE. YU XUE stated that she expected her salary to be about 400,000 yuan per year. YU XUE stated that she would split this salary even with TIAN XUE. Rather than repatriate her proceeds of the fraud to the United States, YU XUE stated that she intended to put 50,000 yuan in her mother's name, 50,000 yuan in her eldest brother's name, 50,000 yuan in the name of her husband's family, and keep 50,000 yuan in China for her children to spend when they are in Beijing. YU XUE stated that she did not care about her salary, she only cared about how many shares of RENOPHARMA she owned.

41. In the same message exchange, TIAN XUE asked YU XUE, "are you going to quit from jsk [GSK] the first year." YU XUE replied, "no" and explained, "This is why I am the core figure." Based upon my training and experience and the evidence gathered during this investigation, I believe that YU XUE was the "core figure" in RENOPHARMA because she had access to steal GSK information. Without the stolen information, she would not be the "core figure." YU XUE then stated that she expected her pay from RENOPHARMA to rise to 1.5 million yuan per year.

42. On August 29, 2012, YU XUE and TIAN XUE continued their discussion about splitting the proceeds from RENOPHARMA. According to the translated text, TIAN XUE stated, "there will be no damned split of the 400,000. Sister, you work so hard to earn 400,000, and you give me half of it, and it's not good for you. Tell me what I can do and I will learn very hard so that I can participate in the company's work. Sister, those people [TAO LI and YAN MEI] do not agree to my participation, do they?" YU XUE replied, "Not true. Let me give you assignments. You need to read hard and grasp the method of the patent." TIAN XUE replied, "I have picked up what I learned at your place last year." YU XUE stated, "I want you to build a database" and "Some of Li Tao's [TAO LI] work also need you." TIAN XUE stated that she would "read the patent proposal and start to build the database this week."

43. In addition to TIAN XUE, YU XUE also wanted to hide some of her profits in her mother's name. Her mother lived in China. To do that in China, she needed her mother's identification papers to register. On October 18, 2012, her mother e-mailed TIAN XUE and stated: "tian: please tell me why you want my identification? mama". TIAN XUE forwarded the e-mail to YU XUE who then forwarded it to TAO LI. TAO LI replied to YU XUE, "You may explain to your mom: Xue Tian [TIAN XUE] wants to join a startup company in China, and you

are also involved, so both of you need her [mother's] ID to register. We need she mail the real ID to Shanghai later."

44. Around the time YU XUE was forming RENOPHARMA, YU XUE was in substantive discussions with a former GSK employee (hereinafter Person 2) to join his company in China, which appeared to operate in the same manner as RENOPHARMA. Person 2, YU XUE, and TIAN XUE discussed the following plan. YU XUE would do the work for Person 2's company but TIAN XUE would get credit for the work and receive payment. Person 2 knew that TIAN XUE did not have the necessary experience to do the work because he doctored her resume to make it appear to his company that she did. While the specifics of Person 2's business relationship with YU XUE are unclear, YU XUE and TIAN XUE's discussions with Person 2 shed light on their intent with RENOPHARMA.

45. On June 13, 2011, YU XUE and TIAN XUE exchanged messages and discussed Person 2's offer. At this time, it appeared that YU XUE and TIAN XUE would accept Person 2's offer and they began to discuss payment arrangements. YU XUE told TIAN XUE that she would "discuss with him [Person 2] how to pay." YU XUE stated that she would insist that Person 2 pay TIAN XUE "at least monthly." YU XUE and TIAN XUE then discussed whether TIAN XUE should quit her job. TIAN XUE expressed some reservation about quitting, which YU XUE believed had to do with money. Attempting to ameliorate TIAN XUE's financial concerns, YU XUE stated, "I will ask ma to give you half of [Person 2's] compazation [compensation] to you as expense." This comment suggested that YU XUE's mother would also receive compensation for YU XUE's work for Person 2 in the apparent same manner as RENOPHARMA.

2. Financial Spreadsheets

46. During the search of the targets' e-mail accounts, the FBI seized a number of financial spreadsheets from Nanjing RenoPharma, Inc., each titled "Daily Cash Report". The reports were written in Chinese and translated into English. These reports generally showed money coming into and out of Nanjing RenoPharma's bank accounts in China. The seized reports begin in January 2014. At that time, RENOPHARMA had about 800,000 yuan in the bank and there is no record of where those funds originated. The records are not complete, but the FBI seized reports for most weeks between January 2014 and August 2015.

47. In terms of income reported during this time period, RENOPHARMA's sales, services, and new investor funds were relatively low. In May 2014, a "temporary customer" invested 2,500,821.77 yuan in RENOPHARMA. No further details were provided. On November 7, 2014, RENOPHARMA received 250,000 yuan for "Sales service provided to a U.S company." On November 12, 2014, they received 350,000 yuan from a person or company for undisclosed services.

48. RENOPHARMA received substantial funds from the Chinese government. In March 2014, RENOPHARMA received 32,000 yuan from Sun Yat-sen University. In May 2014, they received a 30,000 yuan award from the Nanjing Jiangning Science Park for Talents.

In February 2014, they received 1 million yuan from "Funding from State 321 Plan" which is a specific Chinese government plan to promote science and technology. On September 23, 2014, they received 200,000 yuan from the State fund for Youth Foundation. On October 14, 2014, they received 250,000 yuan from the "2014 Provincial Medium and Small Science and Technology Businesses Science Innovation Fund." On December 16, 2014, they received 30,000 yuan from the Ministry of Human Resources and Social Security. On December 29, 2014, they received 40,000 yuan for "expert service" to that same ministry. On April 23, 2015, they received 30,000 yuan in government rent subsidies. On May 18, 2015, they received another 200,000 yuan in state funding for "Talents Funding."

49. Many of the expenses documented in the reports were typical office expenses for supplies, vehicles, and equipment. For example, in May 2014, they spent 333,800 yuan on "MOE software." In March 2014, there is a 12,000 yuan expense for "patent agent fee for three invention" although no further details were provided. In March 2015, there is another 8,520 yuan expense for "Patent Officer charges." In January 2014, the "three senior" officers of the company (most likely TAO LI, YAN MEI, and another employee) received a combined salary of 10,500 yuan. In February 2014, the office had grown to give people with a combined salary of almost 30,000 yuan. In addition, YAN MEI received a "retro paid salary" of 16,000 yuan. The reports also reflected substantial business expenses for "Boss Li" [TAO LI] and "Boss Mei" [YAN MEI]. For example, in March 2014, YAN MEI received 12,962.80 yuan and TAO LI received 4,300 yuan in expenses. On August 27, 2014, TAO LI submitted an expense for 8,944 yuan to pay for YU XUE's plane ticket. (Travel records show that YU XUE traveled to Beijing from August 27, 2014 to September 3, 2014.) On October 24, 2014, TAO LI received a loan of 50,000 yuan. In November 2014, there were several notations it the ledger for expenses relating to "Plan 135."

50. On July 11, 2014, they transferred $50,000 to "U.S. Company." The wire transfer was sent to the Bank of America account of Humanabio, Inc., which was described in the financial records as a related company to RENOPHARMA and controlled by TAO LI and YAN MEI.

V. CONCLUSION

51. Based on the above facts, I believe that there is probable cause to conclude that between January 1, 2012 and December 28, 2015, in the Eastern District of Pennsylvania and elsewhere, YU XUE, YAN MEI, TAO LI, TIAN XUE, and LUCY XI conspired to commit wire fraud in violation of Title 18, United States Code, Section 1349. Therefore, I request that the Court sign the Criminal Complaint and issue warrants for their arrest.

Andrew Haugen, Special Agent
Federal Bureau of Investigation

Sworn and subscribed
before me this 29 th day
of December, 2015.

HON. M. FAITH ANGELL
United States Magistrate Judge